

ABSTRACT OF THE DISCLOSURE

An approach for processing data received from a communications channel in finite precision arithmetic applications generally involves equalizing received data in the time domain prior to demodulation using finite impulse response (FIR) filtering. FIR coefficients used in FIR filtering are selected to minimize SNR degradation attributable to ISI and roundoff errors due to finite precision arithmetic, thereby maximizing channel capacity. The approach considers the communications channel noise attributable to crosstalk, white noise and analog to digital converter quantization noise, ISI attributable to failure of the equalizer coefficients to completely eliminate ISI, round off noise due to the use of finite precision arithmetic in the equalizer and roundoff noise due to the use of finite precision arithmetic in the FFT algorithm.